Building and Appliance Efficiency Office

Blueprint

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California Energy Commission

RESIDENTIAL STANDARDS

Questions and Answers

Q ***If I remove a window from the existing house while doing an addition, can I re-use this window in the addition, or does it need to meet a 0.75 U-value?***

Under certain conditions you can use this existing window in the addition. However, you must use a compliance approach which allows you to account for the actual U-value of this window, which may eliminate prescriptive compliance (see default values in ***Residential Manual*** , Chapter 7).

Q ***If I'm doing an alteration, can I move an existing window to another location? Does it need to meet a 0.75 U-value?***

Once you move the window it must meet the 0.75 U-value requirement because it is an alteration rather than a window replacement. [Window replacements (same size and location) do not have to meet the 0.75 U-value require-ment (***Blueprint*** No. 46).]

Q ***I have two HVAC systems and want to take zonal control credit. Can the return air for both zones be located in the hallway (living zone)?***

No. Because of the need to prevent mixing of air between the conditioned zone and the un-conditioned zone, it is necessary to (1) have the return air for each zone within that zone, and (2) limit any non-closable openings between the two zones to 40 square feet or less. Unless these criteria, in addition to the other criteria listed in Chapter 8 of the ***Residential Manual*** , can be met, credit for a zonally controlled system cannot be taken.

NONRESIDENTIAL STANDARDS

Questions and Answers

Q ***What are the different types of display lighting available for a retail store using the tailored lighting method for compliance? How can I deter-mine which type of display lighting I have?***

There are four types of displays – Floor, Wall, Sales Feature Floor, and Sales Feature Wall displays.

Floor displays are already included in the gross sales floor area along with dressing rooms, sales transactions and circulation areas; the gross sales floor area receives 2.2 Watts/square foot.

Wall displays are called gross sales wall area and receive an allotment of 2.2 Watts/square foot, limited to the actual areas of wall display.

Feature display allotments are based on a need for special highlighting to attract attention to the item being sold and to visually set it apart from surrounding areas. Feature displays receive either 13 or 26 Watts/square foot (illuminance category G), depending on the area of the display and the throw distance (see ***Energy Efficiency Standards*** , Section 146(b), Table No. 1-R).

(continued on page 2)

Questions and Answers (continued)

Sales feature floor displays highlight items not accessible to the customer (although accessible items may be nearby). The allotments are in addition to gross sales areas (that is, display floor area is not subtracted from gross sales area). Such displays are limited to 10 percent of the gross sales floor area, except in very small stores. If a store is less than 800 square feet, the allotment for feature floor displays is 1,000 Watts (Section 146(b)3.D.ii.). The allotments must be used for the displays – any excess lighting cannot be used to supplement gross sales area lighting.

Sales feature wall displays require open shelving or an internally lit, see-through display case. The light source for feature wall displays must be within reasonable proximity of the wall and focused on the display, not on the display and the surrounding area. Feature wall displays are limited to 10 percent of the wall area and any excess lighting cannot be used to supplement gross sales area lighting.

Q ***If I use the area category method, do I have to separate out such areas as bathrooms and corridors from the allowed lighting level (e.g., 1.6 Watts/square foot for office)?***

Yes. Any area separated by interior partitions must be given a separate area designation.

Q ***Since there is no definition for "general" commercial lighting in the area category method, can you offer some guidance in helping me distinguish between "precision" and "general" lighting needs?***

The 1995 ***Energy Efficiency Standards*** (effective July 1, 1995) will contain a definition for "general commercial and industrial work." That definition is "a room, area, or building in which an art, craft, assembly or manufacturing operation is performed." Additionally, the definition for "precision commercial or indus-trial work" is modified to include more specific examples of the types of tasks which would require 2.0 Watts versus 1.3 Watts/square foot. Specifically, "visual tasks of small size or fine detail such as electronic assembly, fine woodworking, metal lathe operation, fine hand painting and finishing, egg processing operations" or similar tasks. You may want to use these definitions with the 1992 ***Energy Efficiency Standards*** as a guide in determining how much lighting your type of commercial/ industrial work is allotted.

Q ***For a building with an HVAC system in excess of 75,000 Btu, which was modeled using a performance compliance approach, do I need to install an economizer?***

An economizer must be installed only when an economizer is modeled as part of the proposed design to achieve compliance. Economizers are not a "mandatory" requirement [in the prescriptive approach (***Energy Efficiency Standards*** , Section 144(e)), they are required under certain conditions (based on capacity and air flow)]. However, it should be noted that for large HVAC equipment, the standard design (energy budget) will assume an economizer. This will reduce the budget for the proposed design by 30-35 kBtu/ft^2, making it difficult to get compliance without an economizer.

Q ***I've calculated the mechanical ventilation for a barber shop, per Energy Efficiency Standards Section 121(b)2.A. and B., as follows:***

A. 2,000 x 0.40 = 800 cfm

B. 15 x (40) = 600 cfm

Do I need a system capable of supplying 600 or 800 cfm?

The mechanical system must provide 800 cfm or more. The system must be capable of providing *no less than* the larger of A or B.

Q ***When calculating the minimum ventilation requirements for a space with fixed seating, can I assume one-half the number of seats as the expected number of occupants?***

(continued on page 3)

Questions and Answers (continued)

No. Spaces with fixed seating must use the number of seats as the expected number of occupants when calculating their mechanical ventilation requirements. An arena, for example, is often filled to capacity for anywhere from two hours (for a concert) to eight hours or more (for conferences). Regardless of the duration of an event, the system must be capable of providing adequate ventilation.

Q ***Can you suggest some ways of meeting the ventilation requirements for spaces such as theaters or churches where occupancy levels can vary greatly?***

As recommended in the ***Nonresidential Manual*** (p. 4-18), such spaces can reduce ventilation when they are not fully occupied by using a demand control ventilation device (see also ***Energy Efficiency Standards*** , Section 121(c)1). These devices, which must be certified to the Commission, can reduce the ventilation rate down to 0.15 cfm per square foot when the space isn't fully occupied. While such devices do not eliminate the need for the system to be capable of supplying full outside air levels when required, they can reduce operating costs without sacrificing comfort.

Q ***Are there any options for providing ventilation besides mechanical ventilation?***

Outdoor air requirements can sometimes be met with natural ventilation. Two conditions are required: (1) the openable area of accessible windows/doors/skylights must be at least 5% of the conditioned floor area; and (2) all spaces must be within 20 feet of these openings (without obstruction). If these two conditions are met, ventilation requirements can be met with natural ventilation.

Q ***Can the ventilation requirements of a space be met with a mixture of natural and mechanical ventilation?***

No. Each space must use either mechanical or natural ventilation (**Energy Efficiency Standards** , Section 121(b)). Using natural ventilation may negatively impact the efficiency and operation of a central system if the outside temperature is warmer or cooler than the inside temperature setting.

Q ***If a space contains some process loads, but isn't exempt from the standards (i.e., it is maintained within the comfort range of 55-90°F), how do I indicate these loads in my compliance documentation/calculations?***

Process loads are included as "other" loads in the sizing calculations (MECH-2 form/ computer inputs). These loads should be described or explained in the compliance documentation.

Q ***If including process loads in sizing calculations results in equipment being large enough to require an economizer with prescriptive compliance, do I have to have one, or is there an exception for process loads?***

There are some exceptions for the economizer requirements, but not specifically for process loads. The three exceptions are: (1) high-rise residential living quarters and hotel/motel guest rooms; (2) where special air treatment equipment is required due to outdoor contaminants; and, (3) where outside air for cooling will adversely affect other systems (humidification, refrigeration, etc.) resulting in increased energy use (***Energy Efficiency Standards*** , Section 144(e)).

DID YOU KNOW?

. . . The Nonresidential Plans Examiner Exam is scheduled for October 27 in Sacramento, Alhambra, and Visalia. The cost is $50 for building department employees and $150 for all other participants. Contact CBCI at (916) 456-3824 for registration information.

(continued on page 4)

DID YOU KNOW (continued)

. . . There is a nonresidential forms generator program available to assist with prescriptive compliance documentation. CONFORMS is available for $250 plus tax (demo disk $10) from:

Donna Wallace
Wallace Energy Consulting
(916) 893-4982

Because this program does not generate an energy budget, it is not reviewed or certified by the Commission. CONFORMS submittals should be plan checked as a prescriptive compliance submittal.

. . . If you have a program which assists compliance and would like the information to appear in a future ***Blueprint*** Newsletter, please send the information to Dee Anne Ross, Efficiency Standards Office, 1516 Ninth St., MS 25, Sacramento, CA 95814-5512. The information is provided as a service to readers only. The Commission does not endorse any products.

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